

with the motor shaft 252 to rotate with rotation of the motor shaft 252 in the housing 220. In this case, the opening and closing members 255 and 256 may be detachably coupled with the motor shaft 252.

[0103] According to the rotation of the motor shaft 252 of the distributor motor 251, the opening and closing members 255 and 256 may selectively open and close the plurality of outlets 222a, 222b, 222c, and 222d.

[0104] Accordingly, the distributor 250 may distribute washing water pumped by the pumping motor 210 to the plurality of jet nozzles 311, 313, 330, and 340 for discharging.

[0105] According to an embodiment, as the diameter of the motor shaft 252 decreases, the plurality of outlets 222a, 222b, 222c, and 222d may be configured to become closer to the center of the pumping motor 210. Accordingly, water pressure of washing water which flows into the pump 200 may be maximally maintained and discharged through the outlets 222a, 222b, 222c, and 222d, thereby increasing efficiency of the pump 200. On the contrary, as diameter of the motor shaft 252 increases, the plurality of outlets 222a, 222b, 222c, and 222d may be configured to become farther from the center of the pumping motor 210. In this case, the efficiency of the pump 200 may be reduced.

[0106] FIG. 11 is a perspective view of the distributor 250 of the dish washing machine 1 according to an embodiment of the disclosure.

[0107] In FIG. 11, the distributor 250 may include the opening and closing members 255 and 256, the distributor motor 251 which generates torque to rotate the opening and closing members 255 and 256, and the motor shaft 252 which transfers the torque generated by the distributor motor 251 to a plurality of such opening and closing members 255 and 256. In this case, the plurality of opening and closing members 255 and 256 may be coupled with the motor shaft 252 and may rotate according to the rotation of the motor shaft 252.

[0108] A first opening and closing member 255 of the plurality of opening and closing members 255 and 256 may be provided at one end of the motor shaft 252, and a second opening and closing member 256 may be provided at one surface of the motor shaft 252. That is, the second opening and closing member 256 may be provided between both ends of the motor shaft 252. The second opening and closing member 256 may be provided to protrude outward in a radial direction from an outside circumferential surface of the motor shaft 252.

[0109] The distributor 250 may include a cam member 253 coupled with the motor shaft 252 and a micro switch 254 in contact with the cam member 253 to sense a rotation position of the opening and closing member. The cam member 253 may be configured to be in contact with a contact terminal of the micro switch 254. The cam member 253 may include at least one convex portion 253a which protrudes in a radial direction and at least one concave portion 253b which is depressed in the radial direction to turn on and off the micro switch 254.

[0110] It may be assumed that the micro switch 254 is configured to be turned on when the contact terminal of the micro switch 254 is in contact with the convex portion 253a of the cam member 253 and turned off when in contact with the concave portion 253b of the cam member 253. In this case, when the distributor motor 251 operates, the micro switch 254 may be alternately turned on and off.

[0111] Meanwhile, the distributor 250 may include a control portion which designates rotation positions of the plurality of opening and closing members 255 and 256 according to time of turning on or off of the micro switch 254 and rotates or stops a motor 230 to rotate the plurality of opening and closing members 255 and 256 to particular rotation positions, which are necessary, among the designated rotation positions. The control portion may be configured as an electronic circuit.

[0112] FIG. 12 is a perspective view of the first opening and closing member 255 of the dish washing machine 1 according to an embodiment of the disclosure.

[0113] In FIG. 12, the first opening and closing member 255 may include at least one ridge 255a and at least one valley 255b. The at least one ridge 255a and the at least one valley 255b may be alternately formed along a circumferential direction of the motor shaft 252.

[0114] According to the rotation of the motor shaft 252, the first opening and closing member 255 may selectively open and close the plurality of outlets 222a and 222b.

[0115] For example, when the motor shaft 252 rotates by a first angle based on the x-axis direction x, the first outlet 222a may be closed by the at least one ridge 255a of the first opening and closing member 255 and the second outlet 222b may be opened by the at least one valley 255b of the first opening and closing member 255.

[0116] Otherwise, when the motor shaft 252 rotates by a second angle based on the x-axis direction x, the first outlet 222a may be opened by the at least one valley 255b of the first opening and closing member 255, and the second outlet 222b may be closed by the at least one ridge 255a of the first opening and closing member 255.

[0117] The first opening and closing member 255 may include a cap 255-1 formed along cross sections of a plurality of such ridges 255a at a front. The cap 255-1 positioned at the front may come into close contact with the first outlet 222a and may cut off leakage of washing water when the first opening and closing member 255 closes the first outlet 222a.

[0118] As an example, the ridge 255a of the first opening and closing member 255 may include a guide surface 255-2. For example, the first opening and closing member 255 may include the guide surface 255-2 formed by depressing a side of the ridge 255a. The guide surface 255-2 may improve flow of washing water in the pump 200 by guiding the washing water to the outlet 222a.

[0119] FIGS. 13 and 14 are views of the second opening and closing member 256 according to an embodiment of the disclosure.

[0120] FIG. 13 is a perspective view of the opening and closing member 256, and FIG. 14 is a cross-sectional view of the opening and closing member 256.

[0121] Referring to FIGS. 13 and 14, the second opening and closing member 256 may include a first blade 256a which forms a curved surface and a second blade 256b which forms a curved surface.

[0122] According to the rotation of the motor shaft 252, the second opening and closing member 256 may open and close at least one of the plurality of outlets 222c and 222d.

[0123] For example, when the motor shaft 252 rotates by the first angle based on the x-axis direction x, the third outlet 222c may be closed and a hole of the fourth outlet 222d may be opened by the first blade 256a of the second opening and closing member 256.